



A CONSENSUS OF

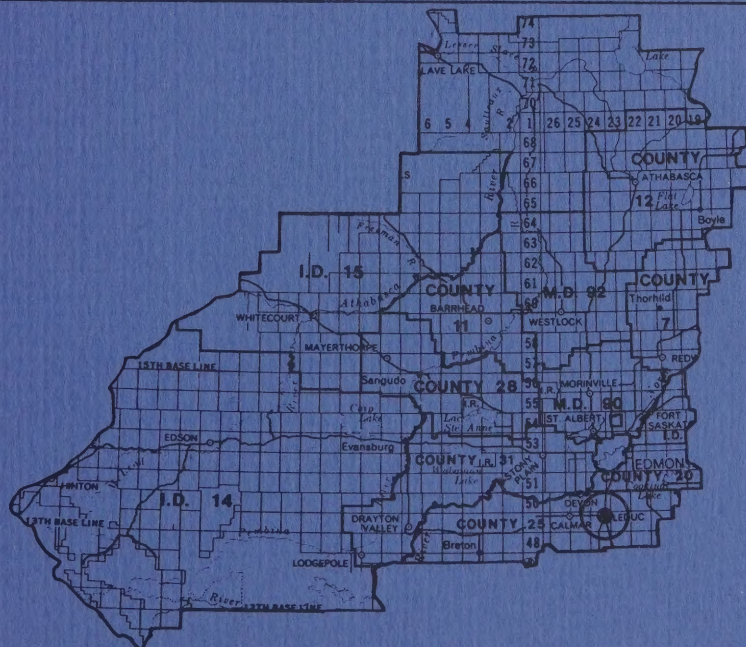
COSTS AND RETURNS

GRAIN SILAGE

200 ACRES

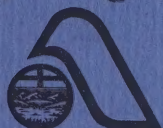
800 ACRE FARM

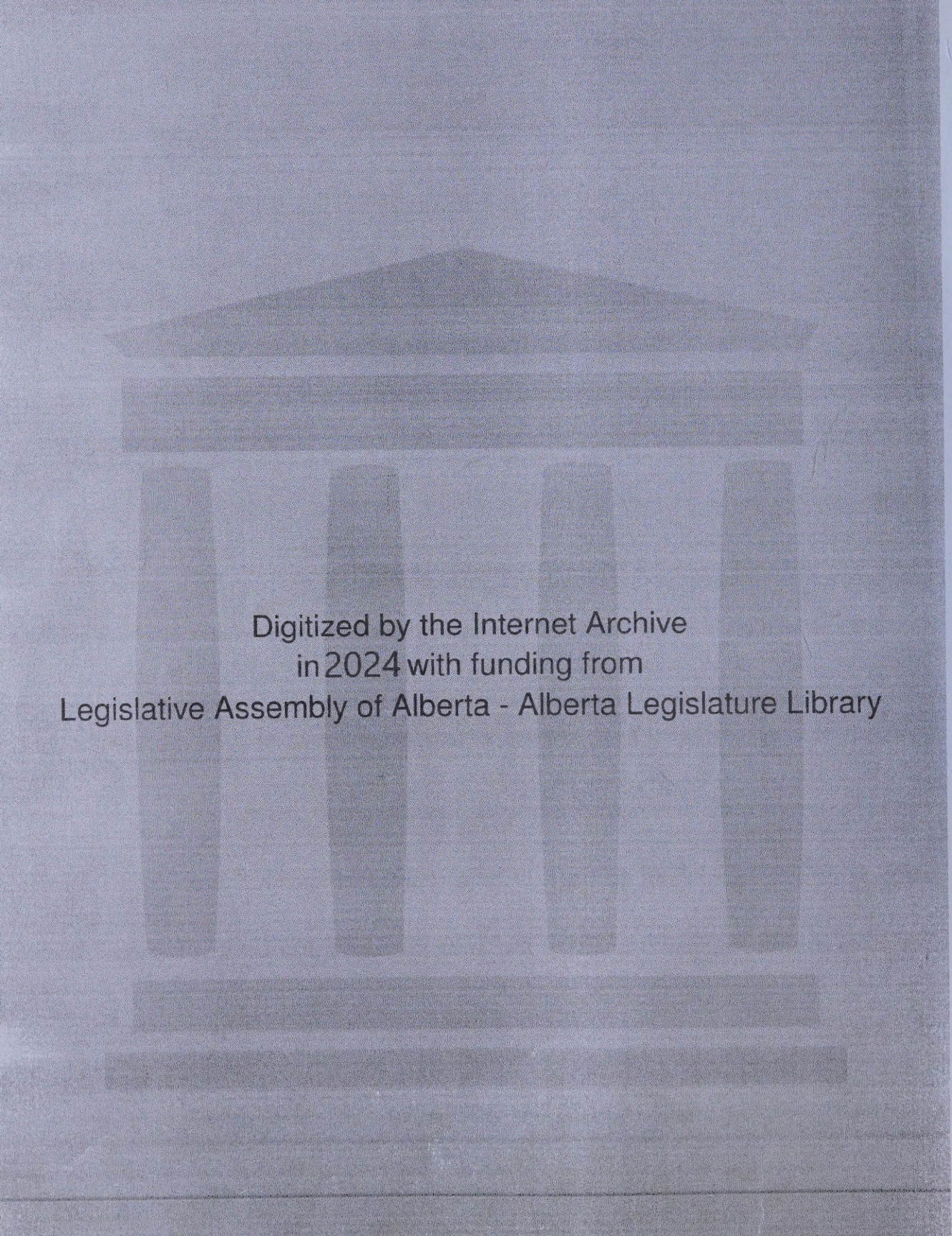
PARKLAND — LEDUC COUNTIES



NORTH WEST ALBERTA

MARKETING DIVISION — ALBERTA DEPARTMENT OF AGRICULTURE





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A CONSENSUS OF COSTS & RETURNS

FOR

GRAIN SILAGE PRODUCTION

200 Acres of Silage

Parkland & Leduc Counties

By

Richard S. Andersen

Regional Farm Economist

The author wishes to acknowledge the assistance of the farmers in Parkland and Leduc counties who provided the basic data; Earle Lowe, Tom Brown and Don Young, D.A.'s in the two counties who participated in gathering the data and assisting in the preparation of this report.

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INTRODUCTION

High Yields and good quality wheat and barley in Census Division 5 have undoubtedly helped that area maintain a strong and healthy agriculture. Because of recent downward pressures on prices and uncertainty associated with market opportunities, there is an ever-growing need for producers to re-examine the profitability of various crops and cultural practices which have characterized their districts for many years. Narrowing profit margins have forced farmers to keep a close eye on all production costs and returns in order to evaluate the short and long term implications of decisions they will make as to what, how and how much to produce.

OBJECTIVES

This report was prepared to provide an estimate of costs of production and the expected returns for cereal silage production. Such information can be an important guide in decision-making, but the reader should keep in mind that costs vary between producers because of differences in land and cultural practices. The farmer's own records are essential to determine what it actually costs to produce a crop on his particular farm.

This report can be useful for management decisions:

1. In selecting the enterprise or crop rotation yielding the highest returns.
2. In determining the amount of cash required to operate during a season.
3. In determining the amount of time expected to be spent on an enterprise.
4. For projecting the expense and income when considering new investments requiring credit.

5. In determining how the expenses and receipts should be shared in rental arrangements.
6. To compare to actual costs incurred in your farming enterprises.

SOURCE AND METHOD OF DATA COLLECTION

The information for the report was gathered from a group of farmers from the district. A day was spent with them discussing the direct costs involved, the complement of machinery needed to produce the crop and the cultural practices carried out. This information was compiled and costs calculated to determine the total cost of production for the crop.

ASSUMPTIONS SPECIFIC TO THIS STUDY

- (1) The farm consisted of 800 acres with the following rotation:
 - Silage 200 acres
 - Grain 600 acres
- (2) Annual use of machines was based on the above cropping pattern.
- (3) Yield per acre and value based on averages expected by the producers with the inputs and operations described in Table A (p.).

<u>Crop</u>	<u>Yield</u>	<u>Value</u>
Grain Silage	9 Tons (wet basis)	\$7.00/Ton

- (4) Seeding rate and cost:

<u>Crop</u>	<u>Rate</u>	<u>Price</u>	<u>Cost</u>
Barley	1bu./acre	\$1.35/Bu.	\$1.35/acre
Oats	1bu./acre	\$0.90/Bu.	\$0.90/acre

- (5) Fertilizer rate and cost:

<u>Type</u>	<u>Rate</u>	<u>Price</u>	<u>Cost</u>
21-0-0	300lbs/acre	\$33.60/ton	\$5.04/acre
11 48-0	50lbs/acre	\$105.00/ton	\$2.65/acre

(6) Weed control cost:

<u>Type</u>	<u>Rate</u>	<u>Price</u>	<u>Cost</u>
MCPA	6oz/acre	\$0.083/oz	\$0.50/acre

- (7) Value of land: \$150/acre and taxes \$2.00/acre.
- (8) Interest rates: Operating capital 8%; Machinery $7\frac{1}{2}\%$; Real Estate 7%.
- (9) Labor: \$3.00/hour - all labor including owner's and hired.
- (10) Hauling based on total miles required to haul silage from field to silo.
- (11) Tractor and machine operating costs are based on information provided by the Alberta Department of Agriculture.
- (12) Storage structures used were two sealed silos 20' x 60' with combined capacity of 1800 Tons.
- (13) Storage costs do not reflect costs for visible and invisible silage losses.
- (14) The cash and operator labor costs for harvest were adjusted linearly for yield variations above and below the reported 9 tons per acre as reported in Table 2 and Table B. For example, the costs for 9.9 tons per acre were calculated as follows:

$$(9.9/9) \times \$4.01(\text{Cash Harvest}) = \$4.41$$

TABLE 1

Summary of Consensus Report

Costs and Returns at 9T/Acre Yield

	<u>Per Acre</u>	<u>Per Ton</u>
Cash Cultural Costs	14.40	1.60
Cash Harvest Costs at 9T/Acre	4.01	0.44
Cash Overhead Costs	2.72	0.30
Total Cash Costs	<u>21.13</u>	<u>2.34</u>
Non-Cash Overhead	38.35	4.26
Operator's Labor at 9T/Acre	1.19	0.14
Total Non-Cash Costs	<u>39.54</u>	<u>4.40</u>
Expected Returns (9Tons @ \$7.00)	<u>63.00</u>	<u>7.00</u>
Gross Cash Margin	<u>41.87</u>	<u>4.66</u>
Return to Risk and Management	<u>2.33</u>	<u>0.26</u>
Return to Operator's Labor, Risk and Management	3.52	0.40
Return to Land, Operator's Labor, Risk and Management	<u>14.02</u>	<u>2.07</u>

TABLE 2

Gross Returns and Costs Per Acre
at Various Yields and Prices

Crop	Grain Silage	Yield Ton				Per Acre		
		-30%	-20%	-10%	Average	+10%	+20%	+30%
Area	Parkland/Leduc	6.3	7.2	8.1	9	9.9	10.8	11.7
RETURNS PER ACRE	Price per Ton							
	6.00	37.80	43.20	48.60	54.00	59.40	64.80	70.20
	6.25	39.38	45.00	50.63	56.25	61.83	67.50	73.13
	6.50	40.95	46.80	52.65	58.50	64.35	70.20	76.05
	6.75	42.53	48.60	54.68	60.75	66.83	72.90	78.98
	7.00	44.10	50.40	56.70	63.00	69.30	75.60	81.90
	7.25	45.68	52.20	58.73	65.25	71.78	78.30	84.83
	7.50	47.25	54.00	60.75	67.50	74.25	81.00	87.75
	7.75	48.83	55.80	62.78	69.75	76.73	83.70	90.68
	8.00	50.40	57.60	64.80	72.00	79.20	86.40	93.60
COSTS PER ACRE	Cash Cultural Costs	14.40	14.40	14.40	14.40	14.40	14.40	14.40
	Cash Harvest Costs	2.81	3.21	3.61	4.01	4.41	4.81	5.21
	Cash Overhead Costs	2.72	2.72	2.72	2.72	2.72	2.72	2.72
	Total Cash Costs	19.93	20.33	20.73	21.13	21.53	21.93	22.33
	Non-Cash Overhead	38.35	38.35	38.35	38.35	38.35	38.35	38.35
	Operator's Labor	9.89	0.99	1.09	1.19	1.29	1.39	1.49
	Total Costs	59.17	59.67	60.17	60.67	61.17	61.67	62.17
	Land int & Op lab	47.78	48.19	48.58	48.98	49.38	49.78	50.18

DUCTION ECONOMICS BRANCH



ECONOMICS DIVISION

Date November 30/71

CROPS & FORAGE

Reg. Ec. R. S. Andersen

200

Earle Lowe

D.A. Earle Lowe
Don Young

~~Don Young~~
(a) (a)

[illegible]

PRODUCTION COSTS
CROPS & FORAGE

821-A

AV. INVESTMENT PER ACRE TO STUDY CROP				FIXED COST PER ACRE	
Item	Per Acre	Depreciation	Interest		
Land	\$ 150	\$ ---	\$ 10.50		
Crop Supplies	.86	.07	.06		
Buildings	115.00	9.00	8.05		
Equipment	59.72	6.26	4.41		
Total					
				NON-CASH OVERHEAD	22.64
				OPERATOR'S LABOR	60.00
TOTAL NON-CASH COSTS PER ACRE					
(A) TOTAL COSTS PER ACRE					
- Operator's Labor					
(B) = Total Cost less Operator's Labor				\$ 59.48	
- Interest on Land					
(C) = Total Cost less Operator's Labor and Interest on Land				\$ 48.98	
(D) EXPECTED GROSS RETURNS PER ACRE					63.00
RETURNS TO OPERATOR'S LAND, LABOR AND MANAGEMENT (D-C)					14.02
RETURNS TO OPERATOR'S LABOR AND MANAGEMENT (D-B)					3.52

Table B

RETURNS PER ACRE TO OPERATOR'S LAND, LABOR AND MANAGEMENT
AT VARIOUS YIELDS AND PRICES

COSTS PER UNIT (e.g. Bu.) AT VARIOUS YIELDS

Crop Area	Cereal Silage Parkland/Leduc	Yield Tons Per Acre						
		-30%	-20%	-10%	Average	+10%	+20%	+30%
		6.3	7.2	8.1	9	9.9	10.8	11.7
RETURNS PER ACRE	Price per Ton							
	6.00	-9.98	-4.99	0.02	5.02	10.02	15.02	20.02
	6.25	-8.40	-3.19	2.05	7.27	12.45	17.72	22.95
	6.50	-6.83	-1.39	4.07	9.52	14.97	20.42	25.87
	6.75	-5.25	0.41	6.10	11.77	17.45	23.12	28.80
	7.00	-3.68	2.21	8.12	14.02	19.92	25.82	31.72
	7.25	-2.10	4.01	10.15	16.27	22.40	28.52	34.65
	7.50	-0.53	5.81	12.17	18.52	24.87	31.22	37.57
	7.75	1.05	7.61	14.20	20.77	27.35	33.92	40.50
	8.00	2.62	9.41	16.22	23.02	29.82	36.62	43.42
COSTS PER TON	Cash Cultural Costs	2.29	2.00	1.78	1.60	1.45	1.33	1.23
	Cash Harvest Costs	0.44	0.44	0.44	0.44	0.45	0.45	0.45
	Cash Overhead Costs	0.43	0.38	0.34	0.30	0.27	0.25	0.23
	Total Cash Costs	3.16	2.82	2.56	2.34	2.17	2.03	1.91
	Non-Cash Overhead	6.09	5.32	4.73	4.26	3.87	3.55	3.23
	Operator's Labor	0.14	0.14	0.14	0.14	0.13	0.13	0.13
	Total Costs	9.39	8.28	7.43	6.74	6.17	5.71	5.32



C.R.D. No. 68/2/72

INVESTMENT SCHEDULE

Consensus Cols. - 1, 2, 4, 5, 7, 12, 13, 14, 15

County Parkland/Leduc

Grain Silage Acres 200

Reg. Ec.

D.A.

821-C

(1) EQUIPMENT	(2) Size	(3) Salvage Value	(4) All Crops Coverage Acres	(5) Study Crop Coverage Acres	(6) Life Yrs.	(7) Study Crop										(13) Acres/Hour	(14) Cash Costs/Hour		(16)
						(8) Annual Deprec.	(9) Annual Costs Int. *	(10) Annual Costs Deprec.	(11) Int. *	(12) Power H.P.	(13) Fuel	(14) Repairs	(15) Total **						
H.D. Cultivator 16"	16"	\$ 1,600	1,600	400	25	15	\$ 24.00	\$ 16.50	\$.12	\$.08	95	5.5	\$ --	\$.21	\$ 1.99				
L.D. Cultivator 20"	20"	1,800	800	200	25	12	33.60	18.56	.17	.09	95	10.0	--	.30	2.08				
Press Drill 12"	12"	3,000	800	200	25	10	67.50	30.90	.34	.15	70	3.5	--	.36	1.62				
Harrow 50"	50"	1,500	800	200	25	20	17.00	15.47	.09	.08	70	24.0	--	.25	1.51				
Sprayer 40"	40"	400	800	200	25	15	6.00	4.13	.03	.02	70	16.0	--	.40	1.66				
Swather (S.P.) 14"	14"	4,000	800	200	25	10	90.00	41.25	.45	.21	--	7.0	.76	1.13	1.89				
Harvester (Lrg)		4,000	200	200	100	5	180.00	165.00	.90	.83	95	3.0	--	.75	2.53				
Silage Wagon 7T	7T	2,500	200	200	100	15	150.00	103.13	.75	.52	45	--	--	.43	1.71				
Silage Wagon 7T	7T	2,500	200	200	100	15	150.00	103.13	.75	.52	45	--	--	.43	1.71				
Blower 54"	54"	800	200	200	100	15	46.00	33.00	.23	.17	70	3.0	--	.48	1.74				
															</				

